

ACCESSION NR: AP4005020

subcutaneous bullae form, their temperature and pressure are measured and their gas composition can be analyzed at any time by taking gas samples. Simultaneous investigation of all three factors in the subcutaneous bullae of animals shows that, although the temperature decreases, the gas pressure remains at a constant level. The expected decrease in vapor pressures and partial gas pressures does not take place in the bullae because new gas enters constantly from the tissues. This also contributes to intensified tissue stratification. The described apparatus can be used in various altitude investigations of laboratory animals. Orig. art. has: 3 figures.

ASSOCIATION: None

SUBMITTED: 10Nov62

DATE ACQ: 20Jan64

ENCL: 00

SUB CODE: AM

NO REF SOV: 001

OTHER: 000

Card 2/2

KOVALENKO, Ye.A.; POPKOV, V.L.; CHERNYAKOV, I.N. (Moskva)

Effect of increased carbon dioxide concentration on hypoxia of cerebral tissues. Pat. fiziol. i eksp. terap. no.2:50-54 '64. (MIRA 17:9)

ACCESSION NH: AP4037624

B/0216/64/000/003/0376/0387

AUTHOR: Kovalenko, Ye. A.; Popkov, V. L.; Chernyakov, I. N.

TITLE: Application of polarography for determining oxygen tension in brain tissues under the influence of factors of high altitude flight

SOURCE: AN SSSR. Izv. Seriya biologicheskaya, no. 3, 1964, 376-387

TOPIC TAGS: polarography, oxygen tension, brain oxygen tension, cortex oxygen tension, dog brain oxygen tension, brain polarography, hypoxia, height induced hypoxia, carbon dioxide breathing, oxygen breathing, rapid ascent hypoxia, lung pressure, lung counter pressure, overload induced hypoxia

ABSTRACT: The basic works on polarography are listed. For this study the mercury drop electrode was replaced by a solid platinum one. The method consists basically in placing 2 electrodes in the tissues of the living organism and applying a 0.6-0.8 voltage. At the cathode a reduction of the available oxygen with initial formation of hydrogenperoxide and its subsequent reduction to water will occur, and this creates a current in the circuit proportional to oxygen concentration in the solution. The theory of the solid platinum electrode has not been completely

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ACCESSION NR: AP4037624

developed as yet. It offers the advantage of measurements in localized parts of the living organism to be used for studying hypoxia states under certain flight conditions. The tests were conducted in dogs; the set-up is figured and the material described. The results of tests for O_2 tension are figured for certain brain tissues upon breathing gas mixtures with a varying O_2 content and upon keeping the dogs in pressure chambers for 2 minutes to simulate various height conditions with and without additional oxygen. The effects of acceleration were also studied and the results are given in % of O_2 tension (pO_2). Upon breathing air these values were rather constant. The correct working of this set-up showed the pO_2 to be proportional to the % content of oxygen in the breathed air. In the first series of experiments on gas mixtures, addition of CO_2 was found to increase pO_2 in the brain under normal conditions and in hypoxia. Rapid ascent to an altitude of 12,000 m without oxygen reduced pO_2 to 1/2 the initial level, with accompanying side effects of hypoxia; and with oxygen to 2/3 that level without side effects. The difference in breathing amplitude under these conditions is briefly touched upon. Almost the same observations were made at 3.6 and 4 km heights. In rapid ascent to 15, 17 and 20 km (simulating leaking of the space cabin) the speed of air rarefaction determined brain deoxygenation and the reserve time (30-50 sec.) after which respiratory arrest set in. Upon repeating the tests, a certain adaptation

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ACCESSION NR: AP4037624

to hypoxic conditions was observed. In a third series pO_2 was studied upon breathing oxygen under excess pressure in the lungs on the ground as well as in simulated heights. An excess pressure of 300-400 mm on the ground increased pO_2 in the brain, while 500-800 and 1100 mm (water column) decreased pO_2 . The effect of compensating such lung pressure by exterior counter pressure was found to depend upon degree and quality of this compensation, on the ground and more so at altitudes to 36-38 km. Oxygen breathing at these heights together with effective counter pressure will keep pO_2 in the brain at 60-70% of the initial value. The effect of acceleration was dependent upon the size, direction and duration of the overload. A twofold overload in the direction pelvis-head had only a slight effect, while an 8-12 fold overload caused a pO_2 pressure contribute to the serious effects of overload. The authors consider this polarographic method highly promising for high altitude physiology. Orig. art. has: 10 figures.

ASSOCIATION: None

SUBMITTED: 00

DATE ACQ: 05Jun64

ENCL: 00

SUB CODE: LS

NO REF SOV: 024

OTHER: 017

Card 3/3

KOZINER, V.B.; KOVALENKO, Ye.A.

Oxygen tension in brain tissues in acute hemorrhage and its therapy with blood substitutes and blood. Pat. fiziol. i eksp. terap. 8 no.1:56-58 Ja-F '64. (MIRA 18:2)

1. Laboratoriya patologicheskoy fiziologii (zav. - deystvitel'nyy chlen AMN SSSR prof. N.A.Fedorov) Tsentral'nogo instituta gematologii i perelivaniya krovi (dir. - dotsent A.Ye.Kiselev), Moskva.

KOVALENKO, Ye.A.; KOROL KOV, V.I. (Moskva)

Method of determining oxygen tension in the cardiac muscle in
a chronic experiment. Pat. fiziol. i ekap. terap. 8 no.6:82-84
N-D '64. (MIRA 18:6)

L 00973-66

ACCESSION NR: AP5019070

UR/0286/65/000/012/0096/0097
535.568.1

AUTHOR: Kovalenko, Ye. A.; Vinogradov, Ye. V.

TITLE: Apparatus for determining oxygen tension in gases and liquids. Class 42,
No. 172110

SOURCE: Byulleten' izobreteniy i tovarnykh znakov, no. 12, 1965, 96-97

TOPIC TAGS: oxygen tension, blood, sensor

ABSTRACT: An Author Certificate has been issued for an apparatus to determine oxygen tension in gases and liquids, consisting of a thermostat, a voltmeter, a galvanometer and a d-c current source. This apparatus has a sensor consisting of a platinum needle and a silver sleeve, separated by a glass capillary and arranged coaxially in a cylindrical plexiglass housing. The end of the sensor, which comes in contact with the gas or liquid, is hermetically sealed with a teflon membrane and gelatine. The device is used to measure oxygen tension in a continuous flow of respiratory gas mixture or in a liquid, such as blood (see Fig. 1 of Enclosure).
Orig. art. has: 1 figure. [JS]

Card 1/3

L 0973-66

ACCESSION NR: AP5019070

ASSOCIATION: none

SUBMITTED: 06Aug63

NO REF SOV: 000

ENCL: 01

OTHER: 000

SUB CODE: LS, ME

ATD PRESS: 4068

Card 2/3

L 00973-66

ACCESSION NR: AP5019070

ENCLOSURE: 01

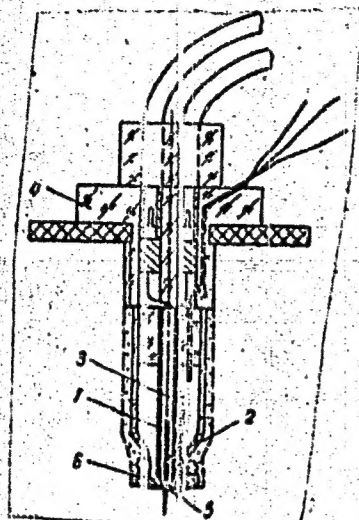


Fig. 1. Apparatus for determining oxygen tension

1 - Silver sleeve; 2 - platinum needle; 3 - glass capillary; 4 - housing; 5 - teflon membrane; 6 - gelatine.

Card 3/3

KOVALENKO, Ye.A.; KOMINER, V.B.

Oxygen supply of the brain in circulatory hypoxia. Fiziol. zhur.
51 no.5:547-553 My '65. (MIRA 18:6)

1. Laboratoriya patologicheskoy fiziologii. Tsentral'nogo instituta
gematologii i perelivaniya krovi, Moskva.

L 00980-66 EMO(j)/EMT(1)/FS(v)-3/EMG(v) DD
ACCESSION NR: AP5019190

UR/0239/65/051/008/0966/0973
612.273+612.17

AUTHOR: Kovalenko, Ye. I. (Moscow); Korol'kov, V. I. (Moscow)

TITLE: Change in oxygen tension in the heart muscle at high altitude and during acceleration

SOURCE: Fiziologicheskii zhurnal SSSR, v. 51, no. 8, 1965, 966-973

TOPIC TAGS: heart muscle, oxygen tension, acceleration, high altitude, biological effect, dog, pressure chamber, centrifuge

ABSTRACT: The effect of high altitude and acceleration on the oxygen tension in the heart muscle of dogs was studied in chronic experiments. Polarographic electrodes had been implanted in the heart muscle. Experiments took place 10-12 days after the animals had been operated on. Along with a continuous record of oxygen tension (in relative units with 100% as a base under control conditions), EKG's and the depth and frequency of respiration were studied before and during the tests. A polarographic determination of oxygen tension in the heart muscle during chronic experiments necessitates a study of how the myocardium is supplied with oxygen during the development of various types of hypoxia. During short exposures to simulated

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L 00980-66

ACCESSION NR: AP5019190

altitudes of 2, 4, and 6 km, the oxygen tension in the heart muscle was 85.22 ± 3.8 , 72.98 ± 4.8 , and $63.68 \pm 4.5\%$, respectively. However, no severe hypoxic disruptions were noted, and EKG's changed little in character. During brief exposure to altitude of 8 and 12 km, oxygen tension in the heart muscle was lowered at 48.15 ± 6.8 and $42.75 \pm 7.4\%$ respectively. Hypoxic disruptions and EKG variations were very evident under these conditions. When dogs were exposed to accelerations, there was an initial increase in pO_2 followed by a decrease. Transverse accelerations of 2 and 4 g for 3 min brought pO_2 back to its original level while at accelerations of 6, 8, 10, and 12 g, pO_2 fell to 87, 85.6, 72, and 63%, respectively. Head to tail accelerations of 6 and 12 g for 3 min sharply decreased pO_2 to 78.5% and 56.5%, respectively. Orig. art. has: 5 figures. [CD]

ASSOCIATION: none

SUBMITTED: 21Jan64

ENCL: 00

SUB CODE: LS

NO REF SOV: 008

OTHER: 004

ATD PRESS: 4068

Card 2/2

L 22781-66 EMT(1) SICTH DD/JT(RML)
ACQ NR: AP6008035

SOURCE CODE: UR/0239/66/052/002/0172/0178

AUTHOR: Kovalenko, Ye. A. (Moscow); Korol'kov, V. I. (Moscow)

ORG: none

TITLE: Oxygen and carbon dioxide tension in the blood during hypoxia, hypercapnia and hypocapnia

SOURCE: Fiziologicheskii zhurnal SSSR, v. 52, no. 2, 1966, 172-178

TOPIC TAGS: hypoxia, hypercapnia, hypocapnia

ABSTRACT: Blood samples were extracted from the femoral artery and atrium dextrum of dogs under barbamyli narcosis while blood from the brain was extracted from the *vena jugularis externa*. In a number of experiments, the concentration of CO₂ in the exhaled air was continuously recorded with an optico-acoustic CO₂ analyzer. Oxygen tension in the cerebral cortex and in the subcortex was also measured by a previously described method (Kovalenko, 1961). It was found that oxygen tension in venous blood flowing from the brain through the external jugular vein is higher than in mixed venous blood of the atrium dextrum under normal conditions as well as during hypoxia. During hypoxia, in addition to a lowering of pO₂ in the blood and tissues of the brain, there is also a lowering in the tension of carbon dioxide in the arterial and venous blood from the brain. When hypoxia gas mixtures are inhaled, the addition of carbon

Card 1/2

UDC: 612.235 + 612.127

L 22783-66

ACC NR: AP6008035

dioxide causes a rise in pO_2 in arterial and, especially, venous blood flowing from the brain; concurrently, pO_2 increases in the brain tissues. During hyperventilation in addition to a sharp drop in pCO_2 an increase in pCO_2 is noted in the arterial blood; simultaneously, there is a considerable drop in pO_2 in venous blood flowing from the brain. The authors conclude by suggesting that the latter fact be taken into account in administering artificial respiration during anesthesia and surgery. Orig. art. has: 3 figures. [14]

SUB CODE: 06/

SUBH DATE: 30Jan64/

ORIG REF: 006/

OTH REF: 008

ATD PRESS: 4229

Card 2/2 *ada*

KOVALENKO, Ye.A. (Moskva); POPKOV, V.L. (Moskva); CHERNYAKOV, I.N. (Moskva)

Oxygenation of brain tissue during the inspiration of air and
oxygen with an admixture of CO₂. Fiziol. zhur. 50 no.2:177-182
F '64.
(MIRA 18:2)

L 12229-65 EHG(j)/EHG(r)/EHG(v)/EHG(a)-2/DAH(c)/EHT(1)/FH(r)-3 Pb-4 DD
 ACCESSION NR: AP5013399 UR/0229/65/051/005/0547/0553
 AUTHOR: Kovalenko, Ye. A.; Kozinov, V. B. 28
 TITLE: Oxygen supply of the brain during circulatory hypoxia 27
 SOURCE: Fiziologicheskii zhurnal SSSR, v. 51, no. 5, 1965, 541-553 B
 TOPIC TAGS: hypoxia, hemodynamics, brain oxygen supply, circulatory hypoxia, brain hemodynamics, dog
 ABSTRACT: The dynamics of oxygen tension in brain tissue during circulatory hypoxia was studied. Twelve dogs with platinum electrodes implanted in the brain were used. Oxygen tension was determined polarographically. Catheters were inserted into the aorta, the internal carotid artery, and the femoral vein. Then circulatory and hemic hypoxia were created by drawing off blood in batches, thereby reducing the amount of blood in circulation and lowering blood pressure. It was found that the pO_2 of brain tissue dropped along with blood pressure, lagging a little behind (especially during abrupt drops in blood pressure) due to compensation processes. It is interesting that a similar drop and equalization of pO_2 in brain tissue is observed during rotation in a centrifuge. When still more blood was removed, pathological cardiovascular symptoms appeared. A number of experiments were conducted which reveal the struggle between pathological and compensatory processes of brain
 Card 1/2

L 52229-65

ACCESSION NR: AP5013399

hemodynamics. Comparison of changes in oxygen tension in brain tissue and blood showed that the pO_2 of brain tissue depends more on the pO_2 of venous than of arterial blood. The experiment led to the following conclusions. When pO_2 in brain tissue is lowered 40% by decreasing the amount of blood in circulation, independent restoration of the pO_2 in the brain is ensured by the nature of the blood supply of the brain. Prolonged lowering (more than 50%) of the pO_2 in brain tissue, accompanied by blood pressure lowered to 10--15% of the initial) is not compensated. Breathing pure oxygen can raise the level of oxygen tension in brain tissue in this instance. One of the chief factors of survival during hypoxia is oxygen tension in brain tissue and approximately corresponding oxygen tension in venous blood. Orig. art. has: 3 figures and 2 tables. [JS]

ASSOCIATION: Laboratoriya patologicheskoy fiziologii Tsentral'nogo instituta geratologii i perelivaniya krvi, Moscow (Laboratory of Pathological Physiology, Central Institute of Hematology and Blood Transfusion)

SUBMITTED: 20Jan64

ENCL: 00

SUB CODE: LS

NO REF SOV: 015

OTHER: 001

ATD PRESS: 4009

Corr 2/2 MB

SIDORA, V.P., ptichnitsa, Geroy Sotsialisticheskogo Truda; KOVALENKO, Ye.I.,
red.; YEROSHENKO, T.G., khud.-tekhn.red.

[We have one million but will have two million eggs] Est' 1 -
budet 2 milliona laits. Kiev, Gos.ind-vo sel'khoz.lit-ry USSR,
1960. 25 p. (MIRA 14:1)

1. Eksperimental'noye khozyaystvo "Borki" Ukrainskogo nauchno-
issledovatel'skogo instituta ptitsevodstva (for Sidora).
(Kharkov Province--Eggs--Production.)

KOVALENKO, Yevgeniy Ivanovich; VAKULENKO, V.P., redaktor; MAKAROVA, A.N.,
tekhnicheskiy redaktor.

[Labor organization and discipline on collective farms] Organizatsiya
i distsiplina truda v kolkhose. Moskva, Gos.izd-vo iurid. lit-ry,
1955. 62 p. (Collective farms) (MLBA 9:5)

KOVALENKO, Yevgeniy Ivanovich.; GREBTSOV, P.P., red.; DEYEVA, V.M., tekhn. red.

[Management of the collective farm] Upravlenie delami kolkhoza.
Moskva, Gos. izd-vo sel'khoz. lit-ry, 1958. 63 p. (MIRA 11:11)
(Collective farms)

TERESHCHENKO, V.I.; SPIVAK, M.S., red.; KOVALENKO, Ya.I., red.

[Economics and the organization of the production of
broilers in the U.S.A.] Ekonomika i organizatsiia proiz-
vodstva broilerov v SShA. Kiev, Urozhai, 1965. 360 p.
(MIRA 18:7)

CA

17

THE NICOTINE CONTENT OF TOBACCO SMOKE. R. KOVALENKO. State Inst. Tobacco Investigations (U. S. S. R.), Bull. 51, 77-82(1931).—When tobacco is burnt by an uninterrupted air current about 10% of the nicotine is lost. Rapidly burning cigarettes (9-10 min. against 17-20 min.) give twice as much nicotine in the smoke as slow burning. The lower the grade of tobacco the higher is the nicotine content of the smoke. An increase of the moisture content of tobacco to 9-11% increases the nicotine content in the smoke; a further increase in moisture decreases it. A variable content of free bases in tobacco has no influence on the nicotine content of the smoke. Burning tobacco in glass tubes increases the nicotine content in the smoke by 18-20% as compared with cigarettes.

I. S. Joffe

ASIA-FLA METALLURGICAL LITERATURE CLASSIFICATION

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100	100

12A 17

PROCESSES AND PROPERTIES INDEX

Chemical characteristics of some *Nicotiana* species.
 E. N. Kovalenko. *Vsesoyuznii Inst. Tabachnoi Prom.*
Khranitel' No. 109, 16-23 (1934).—The dried leaves of
N. glauca, *N. longiflora* and *Potunia violacea* do not contain
 volatile alkaloids. *N. sylvestris*, *N. glauca* and their
 hybrids with *N. tabacum* contain alkaloids, including nico-
 tine. All species contain essential oils and resins. The
 carbohydrate content in several species of *Nicotiana* is not
 high and is less than in yellow tobacco. In hybrids, be-
 tween these species and *N. tabacum*, the carbohydrate
 content is low, but that of protein is high. *N. glauca*
 contains the highest amount of citric acid and *N. glauca*
 the highest content of total org. acids. J. S. Joffe

ASH-SLA METALLURGICAL LITERATURE CLASSIFICATION

BC B-II-2

Determination of sugar in tobacco. M. P. FIAT
 and R. I. KOROTKIN (Rborn. Rabot. China.
 Tabak., 1935, C. No. 125, 127-128). The amount
 of reducing sugar rises parallel to the quality of the
 tobacco. W. P.

ASB-SLA METALLURGICAL LITERATURE CLASSIFICATION

SECTION 1	SECTION 2	SECTION 3	SECTION 4	SECTION 5	SECTION 6	SECTION 7	SECTION 8	SECTION 9	SECTION 10	SECTION 11	SECTION 12	SECTION 13	SECTION 14	SECTION 15	SECTION 16	SECTION 17	SECTION 18	SECTION 19	SECTION 20	SECTION 21	SECTION 22	SECTION 23	SECTION 24	SECTION 25	SECTION 26	SECTION 27	SECTION 28	SECTION 29	SECTION 30	SECTION 31	SECTION 32	SECTION 33	SECTION 34	SECTION 35	SECTION 36	SECTION 37	SECTION 38	SECTION 39	SECTION 40	SECTION 41	SECTION 42	SECTION 43	SECTION 44	SECTION 45	SECTION 46	SECTION 47	SECTION 48	SECTION 49	SECTION 50	SECTION 51	SECTION 52	SECTION 53	SECTION 54	SECTION 55	SECTION 56	SECTION 57	SECTION 58	SECTION 59	SECTION 60	SECTION 61	SECTION 62	SECTION 63	SECTION 64	SECTION 65	SECTION 66	SECTION 67	SECTION 68	SECTION 69	SECTION 70	SECTION 71	SECTION 72	SECTION 73	SECTION 74	SECTION 75	SECTION 76	SECTION 77	SECTION 78	SECTION 79	SECTION 80	SECTION 81	SECTION 82	SECTION 83	SECTION 84	SECTION 85	SECTION 86	SECTION 87	SECTION 88	SECTION 89	SECTION 90	SECTION 91	SECTION 92	SECTION 93	SECTION 94	SECTION 95	SECTION 96	SECTION 97	SECTION 98	SECTION 99	SECTION 100
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Simplifying the determination of the Shinuk and polyphenol numbers. - B. I. Kovalenko, *Sov. Ind. Tobacco and Machine Ind. (U. S. S. R.), No. 123, 147-50 (1975).* - K. substitutes the carbohydrate-nitrogen (total without the nicotine N) ratio for the carbohydrate-protein ratio. Comparing the two ratios, K. shows that the carbohydrate-N ratio from 3 to 5 corresponds to the carbohydrate-protein ratio of 1 or close to it. A ratio of the former above 5 gives a ratio of more than 1 in the latter and a ratio less than 3 in the former -- a ratio of less than 1 in the latter. The regularity of the low polyphenol number in high-quality tobacco is not disturbed if detd. on unhydrolyzed tobacco.

I. S. Joffe

17

Alkaloids of *N. rostrata* and *N. sylvestris*. R. L. Kary-
lenko. *Vestnik. Inst. Tobak. i Melkhoroch. Prom. No.*
133, 39-48 (in English 46) (1937).—The nicotine is ac-
companied by some unknown N substance, volatile in
steam and giving a picrate. It appears that it is not a
simple substance but a mixt., contg. a secondary amine.
The nicotine is react. with petr. ether contg. a mixt. of
chloroform and benzene.

ASB-LLA METALLURGICAL LITERATURE CLASSIFICATION

17

A number of salts of citric acid. R. I. Kovaletka.
Vsesoyuz. Inst. Tabach. i Mashinost. Prom. No. 133,
 111-18(1937). --The mono-, di- and tri-Ca and the
 nicotine salts of citric acid were prepd and the condition
 for their prepn. are discussed. Several properties of
 these salts, such as soly. and pH , were also detd.
 I. S. Tolle

The forms of citric acid in makhorka. E. I. Kovalenko.
 Vsesoyuz. Inst. Tabak. i Makhork. Prom. No. 133, 111.
 123 in English 1221 (1957). - From 75 to 90% of the citric
 acid of makhorka is sol. in H₂O. A 1:25 ratio of tobacco
 to water was used. Addition of the Ca ion reduces the solv.
 of the acid. 1:2:100.

ASH-SLA METALLURGICAL LITERATURE CLASSIFICATION

15A

cf.

Effect of growth substances and alkaloids on the development of cuttings and on the sprouting of seeds of the grape. A. P. Flerov and E. I. Kovalenko (Koslov State Univ.). *Doklady Akad. Nauk S.S.S.R.* 38, 677-680 (1917). $\text{C}_6\text{H}_5\text{CH}_2\text{CO}_2\text{H}$ at 0.01% concn. for 48 hrs. causes a more rapid root formation by cuttings of several grape varieties. Best results are obtained with cuttings in the vegetative stage of development. Morphine (0.01%) causes some stimulation of root formation, while sympathinometur has a moderate effect. Nicotinic acid, ephedrine, and phenamine cause a dark-green coloration of the plant and more extensive growth of foliage than the controls. Seeds treated with any of the above 3 substances accelerate sprouting and raise the percentage of viability of the seeds. Tannins present in the seeds appear to retard sprouting. G. M. K.

CA

Botany 11-D

Effect of 1-naphthylacetic acid on movement of sugars in cuttings of grape vines. A. P. Fierov and K. I. Kovalenko (Novosibirsk Zoon-Vet. Inst.). *Doklady Akad. Nauk S.S.S.R.* 83, 221-4 (1952); cf. C.A. 46, 47236. — Expts. with 40-200 mg. A. solut. of naphthylacetic acid with 40-hr. exposures and tests 12-32 days after exposure for total sugar and starch, showed a 40% or greater increase above controls of carbohydrates in the upper parts of the cuttings even

in 12 days, at which time all starch had been hydrolyzed. and further extension of the tests to longer periods (20 days) showed continuation of the migration from the upper to lower parts of the cutting, while the lower parts began root formation from the callus formation at the site of the cut. In 32 days the sugar content of upper and lower parts is essentially equalized. Thus, naphthylacetic acid causes a flow of sugars from upper to lower parts of the cutting where they are utilized for growth purposes and as soon as root formation commences, there is a definite activation of growth at the upper parts of the cutting. The effect is more pronounced with higher dosages. G. M. Kovalenko

CA

Botany 11-D

Anatomical changes in grape vine cuttings under the influence of 1-naphthylacetic acid. A. P. Pirov and G. I. Kovalenko (Novosibirsk Zoo-Vet. Inst.), *Doklady Akad. Nauk S.S.S.R.* 85, 433-6(1953); cf. C.A. 46, 4721b. — Action of 100 mg./l. solns. of 1-naphthylacetic acid on cuttings of grape vine immersed in them leads to formation of unusually thin-walled and extended cells, with intense formation of a callus and with elimination or destruction of the cork-like tissues. These changes facilitate O supply and stimulate root growth. Better results are obtained with planting of such cuttings in loose soil than in packed soil. G. M. Kovalev

USSR/Cultivated Plants - Fruits. Berries.

M-6

Abs Jour : Ref Zhur - Biol., No 7, 1958, 30064

Author : Kovalenko, Ye.I.

Inst : Stavropol Agricultural Institute.

Title : The Effect of Several Alkaloids on the Germination of Grape Seeds and the Subsequent Seedling Growth.

Orig Pub : Tr. Stavropol'sk. s.-kh. in-ta, 1956, vyp. 7, 173-180.

Abstract : Seeds from the free pollination of the Pukhlyakovskiy, Moldavskiy, white Muscatel and Vengerskiy varieties were soaked after stratification until they showed a negative reaction to tannic acid content in wash water. The washed off seeds were kept for 48, 120 and 168 hours each in aqueous solutions of nicotinic acid, nicotine, caffeine, ephedrine, phenamine, an extract from the tubers of Colchicum speciosum and cocaine in concentrations of 25, 50,

Card 1/2

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APPROVED FOR RELEASE: 06/14/2000

CIA-RDP86-00513R000825520018-0"

USSR/Cultivated Plants. Fruits. Berries.

M

Abs Jour : Ref Zhur - Biol., No 8, 1958, No 34830

Author : Kovalenko E.I.

Inst : Agricultural Institute of Stavropol'

Title : Raising of Seedlings of Grapes with Applications of Alfa-Naphtyl Acetate Acid.

Orig Pub : Tr. Stavropol'sk. s. kh. in-ta. 1956, vyp. 7, 181-194

Abstract : Peduncles of grapes were treated prior to planting with alfa-naphtyl acetate in concentrations of 100 and 50 mg/l and soaked for 24 and 48 hours. Best indications for a large number of root-taking peduncles and for the amount of roots on them were obtained by treatment with the concentration of 100 mg per liter for 48 hours. Under hothouse conditions, 94 to 100 percent of the peduncles treated took root, while only 62 to 68 percent of the control plants succeeded in so doing. In open ground, 55 percent (control 60 percent) took root and showed twice the number of roots compared with the control

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POLOENKO, Ye.I.

All-Union conference of the representatives of the liquor-vodka
and wine making industries concerning the quality of production.
Perm. 1 spirit. gram. 31 no. 643-44 '66. (MIRA 1809)

KOVALENKO, Ye.P.

PAZHEV, Mikhail Mikhaylovich; MIKHAYLOV, Vladimir Vasil'yevich; KOVALENKO,
Yefim Pavlovich; SOSEDOV, O.O., redaktor; PARMSEVSKIY, V.N.,
redaktor izdatel'stva; EVANSON, I.M., tekhnicheskiy redaktor

[Mine tunneling by speed-up methods] Prokhodka gornykh vyrabotok
skorostnymi metodami. Moskva, Gos. nauchno-tekhn. izd-vo lit-ry
po chernoi i tsvetnoi metallurgii, 1956. 99 p. (MIRA 10:1)
(Mining engineering)

69156

21.2000

S/139/59/000/06/012/034
E032/E114

AUTHOR: Kovalenko, Ye.S.

TITLE: A Synchrotron With a Generalised High Frequency Field

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy, Fizika,
1959, Nr 6, pp 85-89 (USSR)

ABSTRACT: The author considers a synchrotron with a generalised high frequency field having N accelerating sectors with a high frequency voltage V applied to each of them. A synchrotron with a generalised high frequency field is defined as one in which there are other field components apart from E_0 . It is assumed that the sectors are disposed symmetrically with a period of $2\pi/N$. The high frequency fields in the synchrotron chamber will be certain functions of $\vec{E}(r, z, \theta) \sin \omega t$ and $\vec{H}(r, z, \theta) \cos \omega t$ which are periodic in θ but, in general, arbitrary in r and z . The Fourier expansions of these functions are given by Eqs (2) and (3). Since $\sin kx$ and $\cos kx$ are linearly independent for different values of $|k|$, it follows that terms corresponding to the same k in Eqs (2) and (3) separately satisfy Maxwell's equations for any k . Moreover, it follows from the

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A Synchrotron with a Generalised High Frequency Field

symmetry of Maxwell's equations that to each k there correspond two independent solutions which separately satisfy these equations. The solutions are given by Eqs (4) and (5). Each of the components in Eqs (2) and (3) corresponds to a travelling wave along the θ axis. Of all the components the most effective one is that whose angular velocity is equal to the angular velocity of the particle. The remaining components produce forced oscillations, and since the amplitude of these oscillations is small, it can always be neglected (Ref 1). If the system of coordinates is chosen so that the unperturbed motion of equilibrium particles takes place in the plane $z=0$, the Maxwell's equations admit of two solutions. The first solution is even in z for the functions E_θ , H_z and E_r , and odd in z for the functions H_r , H_θ and E_z . In that case E_θ , H_z , and E_r reach a maximum value while E_z , H_r and H_θ vanish for $z = 0$. The second solution is odd in z for the functions E_θ , H_z and E_r and even for E_z , H_r and H_θ . In that case the first components vanish in the plane $z=0$ and

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E032/E114

A Synchrotron with a Centralised High Frequency Field

the second components assume their maximum value. Since in this case $E_0=0$ in the plane of motion of the particles, this field cannot be used for acceleration purposes. It is therefore assumed that for the component E_0 the field is even in z and the condition given by Eq (6) is satisfied. It is then possible to calculate the effect of the high frequency field on the radial betatron and synchrotron oscillations. For this it is sufficient to solve the equations of motion for the particles in the plane $z=0$. An independent determination of the motion of particles in the plane $z=0$, and the motion relative to this plane, is possible if these motions are not coupled by the high frequency field. According to Eq (6) th's coupling is absent in the linear approximation. Under these assumptions the equations of motion for the particles are of the form given by Eq (7). All the quantities referring to the equilibrium particles are indicated by the subscript s . Using the transformation $r = r_s + \rho$, $\theta = \theta_s + \psi$, and retaining only terms linear in ρ and ψ , Eq (7) can be rewritten in the form of

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A Synchrotron with a Centralised High Frequency Field

Eq (8), where n is the fall-off exponent of the magnetic field and σ is given by Eq (9). The solution of these equations has been given by Mitropol'skiy in Ref 5. The solutions are given by Eqs (10) and (11) of the present paper, where k.c. denotes a complex conjugate. As can be seen from these solutions, the effect of the structure of the high frequency field on the oscillations is determined by the parameter σ . This effect leads to the result that when $E_r = H_z = 0$ then $\sigma = n_v$ where n_v is defined by Eq (1). This result was obtained by Kolomenskiy and Lebedev in Ref 2. However, the assumption that $E_r = 0$ and at the same time $H_z = 0$ is erroneous. This follows from the fact that since E_r , H_z and E_θ are the k-th components in the sums given by Eqs (2) and (3) and satisfy Maxwell's equations, they must also satisfy Eq (12). Assuming that at the same time $E_r = H_z = 0$, one finds that $n_v = 0$. It is therefore impossible to consider the effect of n_v on the motion of particles without taking into account the effect of E_r and H_z . If the effect of E_r and H_z is taken into account, one

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9(9)

SOV/20-128-2-15/59

AUTHOR:

Kovalenko, Ye. S.

TITLE:

A Gyrotropic Elliptical Wave Guide

PERIODICAL:

Doklady Akademii nauk SSSR, 1959, Vol 128, Nr 2, pp 276-279
(USSR)

ABSTRACT:

The problem of the propagation of electromagnetic waves within a wave guide filled with a longitudinally magnetized ferrite has hitherto been solved only for a wave guide with circular section. In this case, a transcendental equation is obtained which determines the constants of the propagation of all kinds of waves within the wave guide. For wave guides with other sections, these problems are more complicated in the general case, and have not yet been solved though some of them are of great interest. These problems are characterized by the fact that they cannot be solved in closed analytical form, but only in the form of infinite series. The author first investigates a wave guide with elliptical section, which is filled with a ferrite magnetized along the axis of the wave guide. The OZ-axis of the elliptical coordinate system (ξ, η, z) is also assumed to be directed along the axis of the wave guide. The

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A Gyrotropic Elliptical Wave Guide

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equation of the limiting ellipse is assumed to have the form $\xi = \xi_0$ and its eccentricity to be equal to e . The great semi-axis of this ellipse is denoted a . From Maxwell's equation for the component E_z of the wave $\vec{E}(\xi, \eta)e^{i\beta z - i\omega t}$ the equation

$$\Delta^2 E_z + a_1 \Delta E_z + a_2 E_z = 0 \text{ with } a_1 = \omega^2 \epsilon (\mu_3 + \frac{\mu_1^2 - \mu_2^2}{\mu_1}) - \beta^2 (1 - \frac{\mu_3}{\mu_1}),$$

$$a_2 = \frac{\mu_3}{\mu_1} \left[(\omega^2 \epsilon \mu_1 - \beta^2)^2 - \omega^4 \epsilon^2 \mu_2^2 \right] \text{ is obtained. } \Delta \text{ denotes the}$$

Laplace operator in the elliptical coordinate system. The solution of this equation for waves with odd variation concerning the azimuth reads:

$$E_z = \sum_{m=0}^{\infty} D_{2m+1}^1 C e_{2m+1}(\xi, q_1) c e_{2m+1}(\eta, q_1) + \sum_{m=0}^{\infty} D_{2m+1}^2 C e_{2m+1}(\xi, q_2) c e_{2m+1}(\eta, q_2) + \sum_{m=0}^{\infty} D_{2m+1}^3 S e_{2m+1}(\xi, q_1) s e_{2m+1}(\eta, q_1) +$$

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$$+ \sum_{m=0}^{\infty} D_{2m+1}^4 Se_{2m+1}(\xi, q_2) se_{2m+1}(\eta, q_2).$$
 A similar solution is obtained for waves with even variation. After the determination of E_z , also the other field components are obtained from Maxwell's equation. Four homogeneous infinite sets of equations for the hitherto arbitrary coefficients D_{2m+1}^i ($i = 1, 2, 3, 4$) follow from the boundary conditions. These sets of equations are then discussed in detail. An equation accurate up to members of the order e^4 for the determination of β is then deduced and written down. For $e = 0$, this equation passes over into the equation for the circular wave guide and decomposes into two equations for waves with different rotational directions of the polarization plane. This is the very equation that holds (with the afore-mentioned accuracy with respect to e^2) for any values of μ_2 . But its solution in a simple way can be determined only for a weakly gyrotropic medium, i.e. for the case $\mu_2 \ll 1$. The two corresponding values k_{\pm}^2 of the critical

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A Gyrotropic Elliptical Wave Guide

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wave number determine two systems of normal waves in the gyrotropic wave guide, and these waves are independent of one another. The normal waves of the elliptical wave guide are elliptically polarized at all its points, and the polarization is linear only on the walls of the wave guide. In conclusion, the author states that the natural frequencies of a resonator with the length b that is completely filled up with ferrite can be easily determined. All results obtained here hold in a similar way also for plasma. There are 4 Soviet references.

PRESENTED: May 20, 1959, by M. A. Leontovich, Academician

SUBMITTED: April 4, 1959

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S/139/60/000/03/032/045
E032/E314

AUTHOR: Kovalenko, Ye.S.

TITLE: Particle Dynamics in a Waveguide Cyclic Accelerator²⁵

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy, Fizika,
1960, No 3, pp 175 - 179 (USSR)

ABSTRACT: The stability of an accelerator in which the high-frequency field can, in general, have any of the E and H components is discussed. The HF field components are assumed to have an arbitrary dependence on the coordinates r and z , while their dependence on ϕ takes the form of a travelling wave, whose phase is $\psi = \omega t - k\phi$. When all the field components are taken into account, the equations of motion take the form of Eq (1). In Eq (1) subscript '0' denotes the control field, E the energy, P the power and A^0 the vector potential of the control field. It is shown that the plane of motion of the equilibrium particles is displaced relative to the plane of symmetry of the control field $z = 0$. This displacement is small and is given by Eq (2), where s is a subscript referring to equilibrium particles and n is the fall-off exponent for the magnetic field.

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Particle Dynamics in a Waveguide Cyclot Accelerator

It is clear from Eq (2) that as the energy increases, the particles will spiral towards the plane $z = 0$. The equilibrium phase ψ_s can easily be found from

the first two equations in Eq (1) and is identical with the corresponding quantity for an ordinary synchrotron. The stability of the motion or the dynamics of the non-equilibrium particles on the linear approximation can be obtained by using the substitution of Eq (3) and then expanding all the terms in Eq (1) in powers of ψ , ϕ and z' . The resulting equations are found to be rather unwieldy; Eq (4) is an example of one of them. It is clear from this equation that the oscillations in ϕ are related to oscillations in z and ψ . This should lead both to changes in the frequency of the oscillations and the damping coefficient. Exact analysis is difficult and hence it is assumed that in the expressions for the frequencies the squares of the field components can be neglected, while in the expressions for the damping, third powers of the field can be neglected. Laborious transformations lead to Eq (5). ✓

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Particle Dynamics in a Waveguide Cyclic Accelerator

The latter equation does not include terms which introduce damping and depend only on the high-frequency field. A further deduction from Eq (2) is the relation between the damping coefficients and the frequencies given by Eq (6). The stability conditions can be obtained from Eq (5) and are of the form given by Eq (7). On the nonlinear approximation, the phase oscillations in a strong and very nonuniform high-frequency field are described by Eq (8), in which the increase in the energy is neglected. The first integral of Eq (8) can easily be found and is given by Eq (9), in which C is an integration constant and $\alpha = k_0/(1 - n)$.

There are 4 figures and 5 Soviet references.

ASSOCIATION: NII pri Tomskom politekhnicheskom institute imeni
S.M. Kirova (NII at Tomsk Polytechnical Institute imeni
S.M. Kirov)

SUBMITTED: June 15, 1959

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S/142/60/003/002/002/022

E192/E382

9.1300

AUTHORS: Kovalenko, Ye.S. and Shumanskiy, V.I.

TITLE: In-phase Waves in a Periodic Waveguide of Rectangular Cross-section

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy, Radiotekhnika, 1960, Vol. 3, No. 2, pp 153 - 167

TEXT: The propagation of in-phase waves in periodic waveguides²⁵ of rectangular cross-section has been considered by several authors (Refs. 1, 2 and 3). It was found, however, that the results obtained by those authors are in general incorrect. The system considered in this work is illustrated in Fig. 1. It is assumed that it is necessary to determine the field and the propagation constant for the waveguide. The field to be determined is represented by means of a Hertz vector Π_{mx} . Consequently, for the interaction space, the particular solution which satisfies the boundary conditions at $x = \pm a/2$ is given by:

$$\Pi_{mx}^s = A_s \cos \frac{\pi}{a} x \sin k_y^s y e^{j\beta_s z} \quad (1) .$$

For the resonator space it is given by:

$$\Pi_{mx}^s = B_s \cos \frac{\pi}{a} x \cos k_o^s \left(\frac{b}{2} - y \right) \cos \frac{s\pi}{d} (z - t) \quad (2) .$$

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Now the field components in the interaction space are given by Eqs. (3) and for the resonator space they are expressed by Eqs. (4). At the boundary between the interaction space and the resonator space the tangential components of the field vectors are equal. This is expressed by Eqs. (5), (6) and (7). From these expressions it is found that the constants A_s can be determined from a homogeneous system of equations:

$$\sum_{s=-\infty}^{+\infty} \varphi_{se} X_s = 0 \quad (9)$$

where X_s is defined by Eq. (8) and φ_{se} is given by Eq. (9a).

The scattering equation which determines the propagation constant β_0 is expressed by:

$$|\varphi_{se}| = 0 \quad (10)$$

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In-phase Waves in a Periodic Waveguide of Rectangular Cross-section

Eqs. (9) and (10) determining the in-phase LE wave in the waveguide. It is now assumed that the field can be expressed by means of a single Hertz vector Π_{ex} . Now the expressions for the constants A_s and B_s are given by Eqs. (11). The equations for determining A_s are now in the form of Eqs. (17), where Y_s is defined by Eq. (16). The scattering equation is given by Eq. (18). Eqs (17) and (18) determine the in-phase LM waves in the periodic waveguide. It is seen, therefore, that by employing the two Hertz vectors it is possible to construct two types of in-phase waves, namely, waves of LE and LM types. It is not clear, however, whether these two types represent all the possible in-phase waves. The problem is investigated by considering other Hertz vectors and it is shown that the LE and LM waves are the only possible in-phase waves in the periodic waveguide. The scattering equation for LE waves is discussed in some detail; it is shown that the first approximation for Eq.(10)

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In-phase Waves in a Periodic Waveguide of Rectangular Cross-section

(for $d = D$) is in the form of Eq. (36). By solving Eq. (36) it is possible to obtain the dependence of the delay coefficients γ on various geometric parameters of the waveguide. Eq. (36) can be solved graphically and γ is plotted as a function of F in Fig. 3. (where $\Theta = kh$). Further graphs of γ against Θ are shown in Figs. 4. The second approximation of the scattering equation is also considered and the results are shown in Fig. 5, where the dashed curves show the first approximation and the "solid" curves represent the more accurate values. The authors express their indebtedness to their collaborators at the Tomsk Polytechnical Institute for their constant interest in this work and for discussing the results. There are 5 figures and 6 references: 1 English, 1 German and 4 Soviet. ✓

ASSOCIATION: Nauchnyy seminar sektora SVCh NII yadernoy fiziki, elektroniki i avtomatiki pri Tomskom politekhnicheskoye institut im. S.M. Kirova (Scientific Seminar of the Section of SVCh NII for Nuclear Physics, Electronics and Automation of Tomsk Polytechnical Institute imeni S.M. Kirov)

SUBMITTED:
Card 4/4

June 4, 1959, initially; July 24, 1959 after revision.

81747

8/089/60/008/05/07/008

B006/B056

21.2100

AUTHORS:

Vorob'yev, A. A., Didenko, A. N., Kovalenko, Ye. S.

TITLE:

Acceleration of Electrons¹¹ in a Circular Traveling-wave
Accelerator¹⁹

PERIODICAL: Atomnaya energiya, 1960, Vol. 8, No. 5, pp. 459 - 461

TEXT: The suggestion to use a closed circular curved waveguide (the cross section of which is shown on p. 459) as accelerator system was made by Vorob'yev (Ref. 1); in this waveguide an electromagnetic wave with a non-vanishing ρ -component of the electric field propagates. The charge of the waveguide is such that within the range of the mean radius the phase velocity of the wave is $v_{ph} = c$. The propagation of the waves in curved waveguides which are unlimited in the axial direction have already been investigated in an earlier paper (Ref. 2). Proceeding from the results then obtained, the authors in the present paper investigated the possibilities of a control of the particle trajectories by the wave field itself. From the results obtained in Ref. 2 the

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conclusion may be drawn that 1) the curvature of the waveguide reduces the phase velocity of the cophasal waves, and 2) that the influence exerted by the curvature upon the dispersion properties of a system closed in the axial direction is at $v_{ph} = c$ considerably greater than in an axially not closed system. These results are discussed. Several questions relating to the selection of the waveguide parameters are briefly discussed. Contrary to an ordinary synchrotron, the high frequency field in this waveguide accelerator is highly inhomogeneous in axial and radial direction (all components depend in a complex manner on r and z). The dynamics of the particles in the cyclic waveguide accelerator is, however, similar to those in a cyclotron, and the complex wave field does not disturb the normal operation of the accelerator. The suggestions for the control of particle trajectories in the curved waveguide by means of the traveling wave field, which had been made by Vorob'yev already in Ref. 6, are finally discussed (stability conditions - equation (5)). These possibilities of trajectory control by the traveling wave field as well as the possibility of avoiding some technical difficulties occurring in the construction of cyclic

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KOVALENKO, YE. S.

Cand Phys-Math Sci, Diss -- "The theory of waveguide accelerating devices of electron synchrotrons". Tomsk, 1961. 10 pp, 21 cm (Min of Higher and Inter Educ RSFSR. Tomsk State U imeni V. V. Kuybyshev), 150 copies, Not for sale, 17 ref in bibl on pp 9-10 (KL, No 9, 1961, p 175, No 24251). [61-52359]

9.1300

24222

S/142/61/004/001/001/008
EO33/E135

AUTHORS: Kovalenko, Ye.S., and Kovalenko, V.S.

TITLE: [A contribution] to the theory of diaphragmal waveguide of rectangular cross-section

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy, Radiotekhnika, 1961, Vol.4, No.1, pp. 11-25

TEXT: Only LE and LM waves are possible in a diaphragmal waveguide of rectangular cross-section, such as shown in Fig.1. Analysis of these waves leads to an infinite set of algebraic equations. The object of this article is to investigate these equations, to indicate a method for their solution and to apply the results to numerical calculations of the harmonics and boundary frequencies of the LE and LM waves. The possible fields of the waveguide are described by the X-components of the Hertz vectors which for the inter-action space have the form:

$$\Pi_{m\lambda}^x = \sum_{n=-\infty}^{+\infty} \frac{X_n^x}{k_y^x} \frac{\sin k_y^x y}{\cos k_y^x q} \sin \frac{\gamma \pi}{a} x \cdot e^{j\beta_z(z - \frac{D}{2})}; \quad (1)$$

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A contribution to the theory of.....

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E033/E135

$$\Pi_{\alpha}^r = \sum_{s=-\infty}^{+\infty} \gamma_s \frac{\frac{\cos}{\sin} k_y^s y}{\frac{\cos}{\sin} k_y^s q} \cos \frac{\nu \pi}{a} x \cdot e^{j\beta_s \left(x - \frac{D}{2}\right)}; \quad (2)$$

where

$$\beta_s = \beta_0 + \frac{2\pi s}{D}; \quad k_y^s = \sqrt{k^2 - \frac{\pi^2 \nu^2}{a^2} - \beta_s^2}; \quad k = \frac{\omega}{c}.$$

$\nu = 0; 1; 2; \dots$

The upper row of indices and functions in Eqs. (1) and (2) refer to the synphase waves, and the lower row to the anti-phase waves. The vector $\Pi_{mx} \bar{i}$ gives the LE waves and $\Pi_{ex} \bar{i}$ the LM waves. From Eqs. (1) and (2) and the analogous Hertz vectors for the resonator spaces an infinite set of algebraic equations is obtainable. In earlier work (Ref. 1: Ye.S. Kovalenko, V.I. Shimanskiy, same journal, Vol.3, 1960, No.2, p 153) Walkinstaw's method was used, but here the equations expressing the equality of the E_z components are resolved as particular functions of the inter-action space, and the infinite set of

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equations thus obtained. The corresponding sets obtained by Walkinshaw's method are derived from these equations, but the reverse is not true unless $d = D$. The method of solving the infinite system is described. The solution x_i of an infinite regular system of algebraic equations with positive coefficients can be determined within an upper limit \bar{x}_i and lower limit \tilde{x}_i obtained from finite equations. The upper limit \bar{x}_i can be made more accurate by using V.M. Koyalovich's theorem on "limitants" and a new limit for the unknown x_i obtained. The process is successively repeated. Two theorems are developed to simplify the procedure. The method is then applied to solve the infinite system for a regime of Π -oscillations of LE waves and to obtain the critical frequencies of the LM and LE waves. The results show that fast LM waves can exist along with the "operational" slow LE waves, and also show how the critical frequencies of the LM waves depend on the waveguide dimensions. This work was undertaken under the guidance of Professor Doctor of Physical and Mathematical Sciences A.A. Vorob'yev. There are 4 figures, 1 table and 6 references: 5 Soviet-bloc and 1 English.

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A contribution to the theory of..... S/142/61/004/001/001/008
E033/E175

The English language reference reads as follows:

Ref.2: W. Walkinshaw. "Notes on Wave Guides for Slow Waves",
J. Appl. Phys., 1949, V.20, No.6, 634.

ASSOCIATION: Kafedra teoreticheskikh osnov elektrotekhniki,
Tomskogo ordena Trudovogo Krasnogo Znameni
politekhnicheskogo instituta im. S.M. Kirova
(Department of Theoretical Principles of Electrical
Engineering, Tomsk (Red Banner of Labour)
Polytechnical Institute imeni S.M. Kirova)

SUBMITTED: Initially April 24 1960, and after revision
May 20, 1960

Card 4/5

26.2340

S/089/61/010/001/011/020
3006/B063

21.2000 (2217, 1138, 1565)

AUTHORS: Didenko, A. N., Kovalenko, Ye. S.

TITLE: Effectiveness of a Waveguide as the Accelerating System of an Electron Synchrotron

PERIODICAL: Atomnaya energiya, 1960, Vol. 10, No. 1, pp. 69-71

TEXT: This "Letter to the Editor" follows a previous paper which reported on the possibility of using waveguides as accelerating systems in electron synchrotrons. With a view to estimate the effectiveness of this possibility, the authors consider a closed waveguide provided with a diaphragm, in which the wave LE_{11} propagates in azimuthal direction. The phase and group velocities of the wave, its damping α , and the coupling resistance R_c are studied. These parameters along with the quality factor Q determine the shunt resistance R_{sh} which is taken as a measure for the effectiveness of the h-f system. The calculation of these quantities was facilitated by neglecting the spatial harmonics and the effect

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Effectiveness of a Waveguide as the
Accelerating System of an Electron Synchrotron

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HC06/B063

of curvature upon the field structure in the waveguide cross section. Next, explicit formulas are given for these parameters without derivation. Fig. 1 shows α , Q , R_c , v_{gr} , and r_{sh} as functions of λ for $v_{ph} = c$. $2g = 6\text{ cm}$, $a = 5.85\text{ cm}$, and $D = \lambda/4$ (period of the system). Fig. 2 illustrates the dependence of R_c , r_{sh} , and v_{gr} on $2g$ (for $\lambda = 9.3\text{ cm}$). $r_{sh} = \frac{4\pi}{\lambda} R_c Q v_{gr}/c$ is the shunt resistance per unit length of the accelerator; $Q = \omega/2\alpha v_{gr}$; ω is the cyclic frequency. $R_{sh} = 4\pi a R_c Q_{eff} v_{gr}/c$, where Q_{eff} is the effective quality factor of the waveguide, with all losses being taken into account. Finally, a comparison is made between a h-f system in the form of a closed waveguide with a diaphragm and one of the best and most up-to-date resonator systems. For $R_c = 50\text{ ohms}$, $Q_{eff} = 10^4$, and $v_{gr} = 0.1c$, the application of a waveguide like the one used in the German 6-Bev synchrotron DESY, $\lambda = 10\text{ cm}$ would entail a shunt resistance of 2000 megohms. This would be impossible with the use of a conventional resonator. Professor A. A. Vorob'yev is thanked for interest and discussions. There are 3 figures and 3 references: 2 Soviet and 1 CERN.

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30468

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1032/F514

24.6730

DIAGRAMS: 1. Acceleration and deceleration. 2. Trajectory.

TITLE: A cyclic accelerator in which the trajectory is controlled by a high frequency field.

PERIODICAL: Fizicheskaya vysshaya shkola. Fizika. No. 7. 1961. 56-58.

TEXT: A cyclic accelerator in which the trajectory is controlled by the high frequency field of a travelling electromagnetic wave is stated to have important advantages as compared with stationary accelerators. The most important of these advantages are: 1) the energy is unnecessary; 2) the radiation frequency may be increased to several keV and higher; the acceleration is continuous and not pulsed; and 3) the energy spread may be made smaller as compared with a linear accelerator. The results of a detailed analysis are presented, including the frequencies of the radial, longitudinal phase oscillations and the stability conditions. The above stated frequency is also given by

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Velocity acceleration

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$$\left\{ \frac{\partial}{\partial t} \left(\frac{\partial \pi}{\partial t} \right) \right\} \sqrt{\left(\frac{\partial \pi}{\partial t} \right)^2 - n_1^2}$$

$$\left\{ \frac{\partial}{\partial t} \left(\frac{\partial \pi}{\partial t} \right) \right\} \sqrt{\left(\frac{\partial \pi}{\partial t} \right)^2 - n_1^2}$$

121

where π is the radius of the trajectory

$$n = \left[\frac{\partial}{\partial t} \left(\frac{\partial \pi}{\partial t} \right) \right] \left/ \left(\frac{\partial \pi}{\partial t} \right) \right. \quad n_1 = \left[\frac{\partial}{\partial t} \left(\frac{\partial \pi}{\partial t} \right) \right] \left/ \left(\frac{\partial \pi}{\partial t} \right) \right.$$

Π and π are the components of the magnetic and electric fields
vectors π is the vector potential and Θ is the magnetic field
The stability conditions are

$$n < n_1 \quad n_1 < n_2 \quad n_2 < n_3 \quad n_3 < n_4$$

There are 2 cases to consider

ASSOCIATION: Tomskiy and Khirchskiy Institute of Physics
Tomskiy and Khirchskiy Institute of Physics

Submitted: September 19 1961
and 277

X

L 16149-63 EWT(1)/EWT(m)/BDS/ES(v)-2 AFFTC/AFD/ESD-3/AFWL/IJP(C)/SSD

ACCESSION NR: AR3005144 Pa-4 8/0058/63/000/006/A039/A039

SOURCE: RZh. Fizika, Abs. 6 A347 68

AUTHORS: Vorob'yev, A. A.; Didenko, A. M.; Kovalenko, Ye. S.

TITLE: Waveguide electronic cyclic accelerator /9

CITED SOURCE: Izv. Tomskogo politekhn. in-ta, v. 100, 1962, 162-169

TOPIC TAGS: accelerator, cyclic, waveguide

TRANSLATION: Results are presented of an investigation of a waveguide cyclic accelerator with external (controlling) magnetic field; the motion of the particles in the common high frequency field (RZhFiz, 1961, 4345), the behavior of the waveguide in the alternating magnetic field, the electrodynamics of bent corrugated iris-loaded waveguides (RZhFiz, 1961, 6Zh423; 1Zh383), and similar problems are briefly considered. The high efficiency of such an accelerating system is noted. A. Fateyev. 21

DATE ACQ: 15Jul63

SUB CODE: PH

ENCL: 00

Card 1/1

KOVALENKO, Ye.S.; KOVALENKO, V.S.; TSIKIN, B.G.

Calculation of space harmonics in septate wave guides.
Izv. TPI 122:70-79 '62. (MIRA 17:9)

12/6/60

S/057/63/033/001/003/017
B125/B185

AUTHORS: Didenko, A. N., and Kovalenko, Ye. S.

TITLE: The problem of selecting the frequency for an accelerating field of cyclic high-energy electron accelerators

PERIODICAL: Zhurnal tekhnicheskoy fiziki, v. 33, no. 1, 1963, 28 - 33

TEXT: The difference between the frequency dependence of the shunt resistance R_{sh} in the resonator systems ($R_{sh} \sim f^{-1/2}$) and in the wave guide systems ($R_{sh} \sim v^2/p \sim f^{3/2}$) is reported in this paper. At sufficiently large frequencies, wave guide systems produce higher shunt resistances. This was shown by A. N. Didenko, and Ye. S. Kovalenko (Atomnaya energiya, 10, no. 1, 69, 1961). The solution to the problem is approached in several ways: by changing the dimensions of resonators and the wave guide system with increasing frequencies, by fixating the final electron energy and the radius of the accelerator. This necessitates so changing the coefficient alpha that the optimum frequency equals fundamental oscillation type of the wave

Card 1/2

The problem of selecting ...

S/057/63/033/001/003/017
B125/B186

guide system. Taking the quantum fluctuations of radiation into account, it was found that the optimum frequencies of wave guide systems are greater than those of resonator systems. Numerical results are given for the Cambridge synchrotron. The most important English-language reference is M. Sands (Phys. Rev. 97, 470, 1955).

SUBMITTED: January 29, 1962 (initially)
May 21, 1962 (after revision)

Card 2/2

L 1251-63 FWA(k)/INT(1)/DWP(1)/INT(m)/TED/BUS/T-2/3W2/EEC(b)-2/ES(t)-2
 AF TC/AI D/ESD-3/RADC/APC/AWL PI-1/PI-1/PO-1 JHB/WE/WG/IJP(C)/K/EH
 ACCESSION NR: AP3001371 8/0109/63/008/008/1374/1384

AUTHOR: Kovalenko, Ye. S.; Kovalenko, V. S.

TITLE: On the theory of a maser delay system

SOURCE: Radiotekhnika i elektronika, v. 8, no. 8, 1963, 1374-1384

TOPIC TAGS: maser, TW maser, traveling-wave maser, delay element, comb delay element, wave dispersion, population inversion, field harmonics

ABSTRACT: Expressions are derived for several parameters which govern the operation of a TW maser. In particular, attention is given to a comb-type waveguide delay element common to such systems, whose geometry is shown in Fig. 1 of the Enclosure. On the basis of this model, equations are developed for the wave dispersion, field polarization, and population inversion probability, all as functions of comb-structure geometry and ruby placement. For finding wave dispersion a TE₀ mode is assumed, and the case is analyzed for a wave propagating vertically upward through one tooth element of the comb. A combination of three effects occurs when the wave arrives at the top surface of the tooth: simple reflection, reflection with transformation to a higher TE_n mode, and passage of a portion of the wave into the open waveguide volume above the element in a refracted form.

Card 1/12

L-1254-63

ACCESSION NR: AP3004371

The equivalent circuit at the top surface of the element appears as a conductance and shunt capacitance; thus, the dispersion equation is expressed in terms of these parameters. The problem is then reduced to finding useful expressions for the conductance and capacitance; this is done under the simplifying assumption that the generation of the higher wave modes noted above need not be taken into account. With proper alterations, the resultant expressions can also be applied to other variants of comb geometry. Several such arrays are examined, including one with double rows of teeth and another with a partial filling of dielectric material in the guide. In addition, the expressions obtained are applicable for calculating rectangular resonator sections containing one or more rod elements, as are used in some masers. The validity of the equations derived is checked by comparing the results of calculations of wave dispersion with experimental values; they are in good agreement. Field polarization and the probability of population inversion are discussed as functions of ruby location with respect to the comb structure, and it is shown that field harmonics act to reduce the inversion probability and hence should be taken into account in calculating the operation of such systems. The expressions derived are both more accurate and more generally applicable than those advanced to date, owing to the use of the capacitance-conductance analog and to account being taken of the higher harmonics effect. Orig. art. has: 6 figures and 32 formulas.

Card 2/42

VIDENKO, A.N.; KOVALENKO, Ye.S.

Selecting the frequency of an accelerating field in high-energy
electron cyclic accelerators. Zhur.tekh.fiz. 33 no.1:28-33 J.
'63. (MIRA 16:2)

(Particle accelerators)

L 57322-65 EPA(w)-2/EW(m)/EIA(m)-2 Pt-7/Pab-10 IJP(c)
ACCESSION NR: BR4049413 S/0275/64/KOO/009/A059/A059
621.384.6

SOURCE: Ref. zh. Elektronika i yeye primeneniye. Svochny: tom, Abs. 9A400

AUTHOR: Iovalenko, Ye. S.; Iovalenko, V. S.; Ol'shanskij, A. P.

TITLE: Investigation of rod-type delay systems used in multipliers 19

CITED SOURCE: Sb. Elektron. uskoriteli. M., Vyssh. shkola, 1964, 102-109

TOPIC TERMS: delay system, rod delay system, accelerator

TRANSLATION: The rod-type delay systems are considered whose operating wavelength is practically independent of all cross-sectional dimensions. The dispersion equation of such a system is analyzed, and the delay is determined. The system Q-factor and the coupling resistance are calculated. The dispersion characteristic was investigated experimentally by a resonance method. The coupling resistance was measured by a disturbance method using a calibrated probe. Good agreement between the estimated and measured values proved that the developed formulas can be used for calculating the rod-type delay system.

SUB CODE: EC, HP

INCL: 00

KOVALENKO, Ye.S.

One method for designing periodically loaded wave guides.
Izv.vys.ucheb.zav.; radiotekh. 8 no.4:467-471 J1-Ag '65.

(MIRA 18:11)

1. Submitted November 23, 1964.

KOVALENKO, Ye.V.; PETRASHEN', V.I.

RUSSIAN ACADEMY OF SCIENCES

Nature of diphenylcarbazide reaction for hexavalent chromium. Zhur.
anal.khim. 18 no.6:743-749 Je '63. (MIRA 16:9)

1. Novocherkassk Polytechnical Institute.
(Chromium--Analysis) (Carbohydrazide)

MISHCHENKO, V.I.; KOV/LENKO, Ye.V.

Calculations for determining the need of auxiliary workers.
Trakt.i sel'hozmash. no.8:47-48 Ag '59. (MIRA 12:11)
(agricultural machinery industry)

KOVALENKO, Ye.V.; LUTSEDAFSKIY, V.A.; RYSHKINA, T.A.

Investigating semiconductor thermal resistance based on
 $\text{Cu}_2\text{Mn}_3\text{O}_4$. Zhur.prkl.khim. 34 no.8:1880-1883 Ag '61.
(MIRA 14:8)

(Thermistors)
(Copper oxide)
(Manganese oxide)

KOVALENKO, Ye.V., gornyy inzh.; KUZNETSOV, F.V., gornyy inzh.

Systems of mining thick flat seams of the Norilsk deposit.

Ugol' 37 no.5:7-24 My '62.

(MIRA 15:6)

1. Noril'skiy gornometallurgicheskiy kombinat.
(Turguska Basin--Coal mines and mining)

KOVALENKO, Ye.V.; KUMETSOV, F.V.

Selection of an efficient system of mining thick, flat seams
in the Noril'sk coal deposit. Trudy Inst. gor. dela Sib. otd.
AN SSSR no.5 82-111 '64. (MIRA 17:11)

KOVALENKO, Ye.V.

Extraction of a colored product of the reaction of chromium (IV) with
diphenylcarbazide. Trudy Kom. anal. khim. 15:101-103 '65. (MIRA 18:7)

KOVALENKO, Yevgeniy Vasil'yevich; UDOVENKO, Nikolay Antonovich;
ZARUDNYI, N., red.

[Use of calculating machines in the standard method of
accounting] Primenenie schetnykh mashin pri normativ-
nom metode ucheta. Moskva, Finansy, 1965. 50 p.
(MIRA 18:8)

NOVIK, Yekaterina Osipovna; PERMYAKOV, Vadim Vasil'yevich; KOVALENKO, Yekaterina Yeliferovna; RODIONOV, S.P., doktor geologo-mineralogicheskikh nauk, otv. red.; SEREDENKO, M.N., doktor ekonomicheskikh nauk, otv. red.; ZAVIRYUKHINA, V.N., red. izd-va; SKLIAROVA, V.Ye., tekhn. red.

[History of geological studies of the Donets coal basin, 1700-1917]
Istoriia geologicheskikh issledovaniï Donetskogo kamennougol'nogo
basseina, 1700-1917. Kiev, Izd-vo Akad. nauk USSR, 1960. 530 p.
(MIRA 14:7)

1. Chlen-korrespondent AN USSR (for Rodionov)
(Donets Basin--Geology)

KOVALENKO, Yekaterina Yeliferovna; UL'YANOVA, Antonina Dmitriyevna;
KARP, I.M., ~~red. tekhn.nauk~~, red.; LEVBERG, Z.M. [Levberh, Z.M.], red.
izd-va; RAKHLINA, N.P., tekhn. red.

[Natural fuel gases of the Ukrainian S.S.R. and their uses;
a bibliographic index for 1917-1961] Pryrodni horiuchi gazy Ukraini'-
koi RSR ta vykorystannia (1917-1961 rr); bibliografichnyi pokazchuk.
Za red. I.M.Karpa. Kyiv, Vyd-vo AN Ukr.RSR, 1963. 287 p.
(MIRA 16:9)

(Bibliography--Ukraine--Gas, Natural)
(Ukraine--Gas, Natural--Bibliography)

KOVALENKO, Yu., gvardii mayor, letchik 1-go klassa

Two captains. Kryl.rod. -14 no.1:3 Ja '63.
(Air pilots)

(MIRA 16:1)

LOYKO, Anatoliy Mikhaylovich; KANIVETS, Ivan Danilovich [Kanivets', I.D.];
KOVALENKO, Yurii Gur'yevich [Kovalenko, IU.H]; OLEFIRENKO, G.A.
[Olefirenko, H.O.], red.; GULENKO, O.I. [Hulenko, O.I.], tekhn. red.

[Over-all mechanization of corn growing] Kompleksna mekhanizatsiia
vyroshchuvannia kukurudzy. Kyiv, Derzh. vyd-vo sel'skohospodars'koi
lit-ry URSR, 1961. 248 p. (MIRA 14:11)
(Corn(Maize)) (Agricultural machinery)

KOVALENKO, Yuriy Nikolayevich; VORONKOVA, L.V., red.

[Economics of designing industrial structures] Ekonomika
proektirovaniia promyshlennykh zdani. Kiev, Budivel'-
ryk, 1964. 109 p. (MIRA 17:8)

BELYAKOV, Nikolay Fedorovich [Bieliskov, M.F.]; KOVALENKO, Yu.S.,
detsent, otv.res.; ALYAB'YEV, M.Z. [Alisb'iev, M.Z.], red.;
RUDNITSKAYA, I.I. [Rudnyts'ka, I.T.], tekhn.red.

[Collection of problems in foundation engineering] Zbirnyk
zadach z osnov na fundamentiv. Kharkiv, Vyd-vo Kharkivs'koho
derzh.univ. im. O.M. Gor'kogo, 1960. 183 p. (MIRA 13:8)
(Foundations)

KOVALENKO, Yu.T., inzh.

Surface tension of micelles. Masl.-zhir.prom. 28 no.2:8-12
F '62. (MIRA 15:5)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut zhirov.
(Micelles) (Surface tension)

DENSECHIKOV, Mikhail Timonovich, kand.tekhn.nauk; SILIN, P.M., prof., red.; VESELOV, A.Ya., prof., red.; SMIRNOV, V.A., prof., red.; RZHEKHIN, V.P., red.; LEBEDEV, P.P., red.; KOVALENKO, Yu.T., red.; KUPCHINSKIY, P.D., red.; BENIN, G.S., red.; PYANKOV, A.G., red.; SINAYDMAN, L.O., red.; MOREV, N.Ye., red.; SEMAIN, M.M., red.; BULGAKOV, N.I., red.; MAYOROV, V.S., red.; TERNOVSKIY, N.S., red.; RAZUVAYEV, N.I., red.; OGORODNIKOV, S.T., red.; BURMAN, M.Ye., red.; KEOLOSTOV, V.A., red.; NAMESTNIKOV, A.F., red.; NASAKIN, T.N., red.; KOVALEVSKAYA, A.I., red.; KISINA, Ye.I., tekhn. red.

[Wastes from the food industry and their utilization] Otkhody pishchevoi promyshlennosti i ikh ispol'zovanie. Izd. 2., dop. 1 perer. Moskva, Pishhepromisdat, 1963. 615 p. (MIRA 16:6)
(Food industry--By-products)

CHIRIN, Lev Aleksandrovich; LITVER, Ye.L., dots., otv. red.;
KOVALENKO, Yu.V., red.; PAVLICHENKO, M.I., tekhn. red.

[Programming for electronic digital computers] Program-
mirovanie dlia elektronnykh tsifrovyykh vychislitel'nykh
mashin; spravochno-metodicheskoe posobie. Rostov-na-
Donu, Izd-vo Rostovskogo univ., 1963. 64 p.

(MIRA 16:11)

(Programming (Electronic computers))

ANDRIANOV, V.I., kani. istor. nauk, otvet. red.; KOVALENKO, Yu.V., red.;
PALAMARCHUK, A.B., red.; PAVLICHENKO, M.I., tekhn. red.

[Studies on the economic development of the Don, 1861-1917] Ocherki
ekonomicheskogo razvitiia Dona, 1861-1917. Rostov-na-Donu, Izd-vo
Rostovskogo univ., 1960. 172 p. (MIRA 14:8)

1. Rostov-on-Don, Universitet.
(Don Valley—Economic conditions)

41151
S/159/62/000/009/025/120
D228/D307

9.7200
AUTHORS: Gushchin, N. L., Klugman, I. Yu., Kovalenko, Yu. V.
and Lerner, E. L.
TITLE: Seismic record converter ПСЗ-1 (PSZ-1)
PERIODICAL: Referativnyy zhurnal, Geofizika, no. 9, 1962, 28, ab-
stract 9A183 (In collection: Razved. i promysl. geo-
fiz. no. 41, M., 1961, 98-103)
TEXT: The authors describe the design of a PSZ-1 analog computer
for interpreting seismic exploration data. It is intended for auto-
matically processing seismograms, obtained by the continuous pro-
filing reflection method when up to 26 groups of seismic detectors
are spaced symmetrically relative to the detonation point. The ori-
ginal data for processing are seismic records, obtained with a
wide-band channel on magnetic film. The machine accomplishes the
following operations: 1) introducing static corrections for the
inhomogeneity of the section's upper part into the seismic records;
2) introducing dynamic corrections for the normal time increment

Card 1/2

Seismic record converter ...

S/169/62/000/009/025/120
D228/D307

along the profile; 3) shifting vibrations with different routes according to the law chosen; 4) frequency filtration by means of high- and low-frequency filters or by changing the tape-winding rate; and 5) automatically regulating the amplification. The final results are recorded simultaneously in two forms: by the usual method of variable amplitude on writing paper, and by means of variable density on photographic paper in the form of time sections. The first results of testing the PSZ-1 give grounds for reckoning that computers of this type will find wide application and will allow the effectiveness of seismic exploration to be increased markedly. [Abstracter's note: Complete translation.]

Card 2/2

BELOZEROV, Semen Yefimovich; AVDEYEV, N.Ya., dots., otv. red.;
KOVALENKO, Yu.V., red.; PAVLICHENKO, M.I., tekhn. red.

[Principal stages of the development of the general theory
of analytic functions] Osnovnye etapy razvitiia obshchei teorii
analiticheskikh funktsii. Rostov-na-Donu, Izd-vo Rostovskogo
univ., 1962. 311 p. (MIRA 16:3)
(Functions, Analytic)

L 12058-66 ZWT(1) OM

ACC-NR: AP6005347

SOURCE CODE: UR/0413/66/000/001/0092/0092

AUTHORS: Baryshnikov, G. P.; Gushchin, N. L.; Kovalenko, Yu. V.; Lerner, B. L.; Sarkisov, S. S.; Shekhter, Z. Zh.; Kul'gin, I. Ya.

ORG: none

TITLE: Device for automatic processing of primary seismic data. Class 42, No. 177539

SOURCE: Izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, 1, 1966, 92

TOPIC TAGS: seismograph, automatic data processing

ABSTRACT: This Author Certificate presents a device for automatic processing of primary seismic data. The device consists of drums for recording seismograms, magnetic heads, and a magnetic head transport unit. To simplify the design and to increase the efficiency of seismogram processing, the magnetic head transport unit is in the form of a cam system connected to a step drive and mounted on a common shaft (see Fig. 1). The shaft is turned quasi-discretely at the end of each rotation of the recording drum. To vary the center of the summation line, the middle cam of the transport unit is mounted opposite the magnetic head located at the center of the summation line.

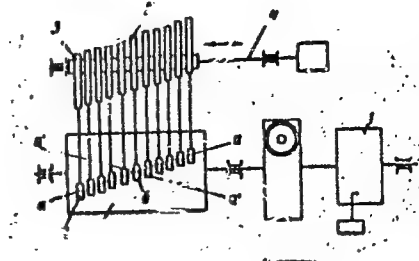
Card 1/2

UDC: 550.340.8

L 42068-64

ACC NR: AP6005347

Fig. 1. 1 - drums for recording seismograms;
2 - magnetic heads; 3 - cam system;
4 - shaft; 5 - middle cam of system;
6 - magnetic head selected as center
of summation base line; a-a' - summa-
tion base line



Orig. art. has: 1 figure.

SUB CODE: 08/ SUBM DATE: 24Sep64

Card 2/2 of

KOVALENKO, Yu. Ye., Cand Tech Sci -- (diss) "Research into the rolling of seamless railroad wheels." Dnepropetrovsk, 1960. 14 pp; (Academy of Sciences Ukrainian SSR, Inst of Ferrous Metallurgy); 100 copies; price not given; (KL, 26-60, 135)

S/182/60/000/011/003/016
A161/A029

AUTHORS: Shifrin, M.Yu., Kovalenko, Yu.Ye., Kolesnik, B.P., Polyakova, N.K., Kharshorin, A.M.

TITLE Development of Technology for Manufacture of Hollow Axles

PERIODICAL Kuznechno-shtampovoye proizvodstvo, 1960, No. 11, pp.11-15

TEXT: The problem of hollow axles for rolling stock on railroads could not be solved up to now. The authors have suggested to manufacture hollow axles from hollow rolled blanks and the Uralvagonzavod plant has developed axle designs in cooperation with the Ukrainskiy nauchno-issledovatel'skiy trubnyy institut (Ukrainian Scientific Tube Research Institute) (Fig. 1, axle for plain bearings, Fig. 2, for roller bearings). Experiments were carried out with billets rolled in an automatic tube rolling mill from "45" steel per GOST 1050-57 (GOST 1050-57) standard of the following composition: (%) 0.44 C; 0.63 Mn; 0.25 Si; 0.28 S; 0.021 P; 0.13 Cr. Blanks of 230 mm diameter were pierced in a piercing mill, rolled in an automatic "220" or "400" mill with three passes, then reheated and forged on the ends in an especially designed three-impression die (Fig. 4), or in Card 1/8

S/182/60/000/011/003/016
A161/A029

Development of Technology for Manufacture of Hollow Axles

a single-impression die (Fig. 5) for plain or roller bearings, respectively (Fig. 7 and 8). Ends were forged with a mandrel to maintain the hole in the axle trunnions. The axle wall thickness was uneven on account of the twisting of the metal in the piercing process, but this helical line of higher or lower wall thickness did not disbalance the entire axle too much. As wall unevenness can increase on account of buckling of rough axles, straightening of the rough rolled axle must be made obligatory in the manufacturing process. The axles were normalized in a continuous furnace with $840 \pm 10^\circ\text{C}$ for 5 h 30 min and cooled in the air. The macrostructure of the trunnions metal was dense and sound with fibers following the axle outline without interruptions and with insignificant segregation of sulfur towards the inner surface. The mechanical properties were above the standard requirements and partly even higher than the mechanical properties of solid axles. The weight of the axles varied between 328 and 348 kg compared with 423 kg of a solid standard axle. When techniques will be improved, the weight of the hollow axle for roller bearings may be further reduced to

Card 2/8

S/182/60/000/011/003/016
A161/A029

Development of Technology for Manufacture of Hollow Axles

310-318 kg. The conclusion is drawn that manufacture of hollow axles from rolled blanks by rolling and subsequent forging of the ends is feasible. Fatigue tests of hollow axles are necessary, but a rolling shop project for manufacturing hollow axles may be developed without waiting for the test results, for hollow axle blanks can be produced by existing equipment. The recommended production equipment includes a machine for making hollow blanks, a three-high helical cross rolling mill ("stan poperechno-vintovoy prokatki") and hydraulic presses for forging the axle ends.

Card 3/8

SHCHERIN, N.Ya., kand. tekhn. nauk; VOIKOVITSKIY, G.I., kand. tekhn. nauk;
KOLESONIK, D.P., kand. tekhn. nauk; KOVALENKO, Yu.Ye., kand. tekhn.
nauk; DZYUBA, P.I., inzh.; POLYAKOVA, F.K., inzh.

Manufacturing hollow railroad axles from centrifugally cast
billets. Proizv. trab no.12:133-140 '64.

(MKRA 17:11)

CHEKMAN V. A.F., akademik; KOVALENKO, Yu.Ye., kand. tekhn. nauk;
RYABOKON', N.K., inzh.; STAROSELETSKIY, M.I., inzh.;
KLYUKIN, A.N., inzh.; KOSHCHIN, A.G., inzh.; MAKAYEVA, T.I.,
inzh.; BOCHKAREV, V.A., inzh.; MEZENIN, G.F.; TRAKHMAN, L.D.

Investigating the process of rolling wheels at the Nizhniy
Tagil metallurgical combine. Stal' 25 no.6:543-546 Je '65.
(MIRA 18:6)

1. VNIT i Nizhne-Tagil'skiy metallurgicheskiy kombinat.

KACHURO, I.M.; red.; KOVALENKO, Z.G., red.; YERMILOV, V.M., tekhn. red.

[Monetary wages on collective farms of the White Russian S.S.R.]
Denezhnaya oplata truda v kolkhozakh BSSR. Pod obshchei red.
I.M.Kachuro. Minsk, Izd-vo Akad. sel'khoz. nauk BSSR, 1960.
97 p. (MIRA 14:5)

1. Minsk. Institut ekonomiki i organizatsiy sel'skokhozyaystven-
nogo proizvodstva. 2. Chlen-korrespondent AN BSSR (for Kachuro)
(White Russia--Collective farms--Income distribution)

KOVALENKO

FECHRY : Cultivated Plants. Fruit. Berry. Nuciferous. M
Tea.
ABS. JOUR. : RZhBiol., No. 3, 1959, No. 1143
AUTHOR : Kovalenko, Z. A.
INST. :
TITLE : The Middle-Asiatic Varieties of Grapes Under the Conditions of Stalingrad.
ORIG. PUB. : Vinodeliye i vinogradarstvo SSSR, 1956, No. 4, 42-44.
ABSTRACT : The Middle-Asiatic grape varieties Himrang and Tayfi Rozovyy have been cultivated since 1953 and since 1955 - Fobeda, Muscat Uzbekistanskiy, Khuzayne Belyy and Kara Khalli (1 plant of each variety). The plants were developed by the accelerated method with the use of suckers. For the winter, the plants were covered in three layers with an organic interlayer of leaves. The first crop was obtained in 1955.

CART: 1/1

KOVALENKO-KAZANTSEV, G.I.

APPROVED FOR RELEASE: 06/14/2000 AID P 2590
CIA-RDP86-00513R000825520018-0"
Subject : USSR/Hydraulic Engineering

Card 1/1 Pub. 35 - 13/20

Authors : Kovalenko-Kazantsev, G. I. and Kazakov, V. A., Engs.

Title : Operation of the drainage suction system lowering the level of underground water at construction sites

Periodical : Gidr stroi, 4, 38-39, Ap 1955

Abstract : Experiments made with a certain type of the pumping installation at the Gor'kiy Hydr-Power Plant construction project in 1953 are reported. The capacity of this LIU-3 type pump with a 210 kw motor is 60-70 cu m per hr. Two diagrams.

Institution : None

Submitted : No date